

WHAT IS CLAIMED IS:

1. An image sensor comprising:

(a) at least first and second photo-sensitive regions;

(b) a color filter array having at least two different colors that selectively absorb specific bands of wavelengths, and the two colors respectively span portions of predetermined photo-sensitive regions; and

wherein the two photo sensitive regions are doped so that electrons released at two different depths in the substrate are collected in two separate regions of the photo sensitive regions so that, when wavelengths of light pass through the color filter array, light is absorbed by the photo sensitive regions which photo sensitive regions consequently releases electrons at two different depths of the photo sensitive regions and are stored in first and second separate regions;

(c) at least two charge-coupled devices adjacent the first photo sensitive regions; and

(d) a first transfer gate associated with the first photo sensitive region that selectively passes charge at first and second levels which, when at the first level, causes the charge stored in the first region to be passed to one of its associated charge-coupled devices, and when the transfer gate is at the second level, charge stored in the second region is passed to one of the associated charge-coupled devices.

2. The image sensor as in claim 1 further comprising a charge-coupled device adjacent the second photo sensitive regions, and a second transfer gate associated with the second photosensitive region that selectively passes charge at first and second levels which, when at the first level, causes the charge stored in the first region to be passed to the associated charge-coupled devices, and when the transfer gate is at the second level, charge stored in the second region is passed to the associated charge-coupled.

3. The image sensor as in claim 1 further comprising two charge coupled devices associated with the second photo sensitive region, and a second transfer gate associated with the second photo sensitive region that selectively passes charge at first and second levels which, when at the first level, causes the charge stored in the first region to be passed to one of its associated charge-coupled devices, and when the transfer gate is at the second level, charge stored in the second region is passed to one of the associated charge-coupled devices.

4. An image sensor comprising:

(a) at least first and second photo-sensitive regions;

(b) a color filter array having at least two different colors that selectively absorb specific bands of wavelengths, and the two colors respectively span portions of predetermined photo-sensitive regions; and

wherein the two photo sensitive regions are doped so that electrons that are released at two different depths in the substrate are collected in two separate regions of the photo sensitive regions so that, when wavelengths of light pass through the color filter array, light is absorbed by the photo sensitive regions which photo sensitive regions consequently releases electrons at two different depths of the photo sensitive regions and are stored in first and second separate regions;

(c) at least two charge-coupled devices adjacent the first photo sensitive regions; and

(d) a first and second transfer gate associated with the first photo sensitive region that respectively passes charge to from the first and second levels to respectively associated charge-coupled devices.

5. The image sensor as in claim 4 further comprising a first and second transfer gate adjacent two charge-coupled devices and the first and second transfer gates are associated with the second photo sensitive region that respectively passes charge from the first and second levels to respectively associated charge-coupled devices.

6. The image sensor as in claim 4 further comprising a first and second transfer gate adjacent one charge-coupled devices and the first and second transfer gates are associated with the second photo sensitive region that respectively passes charge from the first and second levels to the charge-coupled device.